

What is claimed is:

1. A living body stimulating apparatus for applying an electric stimulus to a living body, said apparatus comprising conductor elements to apply a stimulation signal to the living body by allowing an electric current to flow from the conductor elements to the living body,

wherein said apparatus further comprises a stimulus generator means for recurrently outputting rectangular wave pulse groups to said conductor elements as stimulation signals, said stimulus generator means outputting the stimulation signals in which the density of a plurality of on-pulses that constitute the rectangular wave pulse groups is varied during an output period of the rectangular wave pulse groups.

2. A living body stimulating apparatus according to claim 1, wherein said stimulus generator means outputs said stimulation signals so that a time width of each rectangular wave pulse group may be at least 100 times wider than that of said on-pulses.

3. A living body stimulating apparatus according to claim 1, wherein said stimulus generator means is provided with a switching means for generating rectangular wave pulse groups containing a plurality of higher frequency signal components than the rectangular wave pulse by on-off switching of the rectangular wave pulse and a pulse density controlling means for supplying PDM digital signals for switching the switching means to the switching means.

4. A living body stimulating apparatus according to claim 3, wherein said pulse density controlling means comprises a control sequence installed inside a CPU.

5. A living body stimulating apparatus according to claim 3, further comprising a strong stimulation command means for temporarily outputting a rectangular wave pulse of a larger amplitude than a predetermined one.

6. A living body stimulating apparatus according to claim 5, wherein said strong stimulation command means comprises a control sequence installed inside a CPU.

7. A living body stimulating apparatus according to claim 1, further comprising

a stimulation pause command means for temporarily stopping the output of said stimulation signals.

5 8. A living body stimulating apparatus according to claim 7, wherein said stimulation pause command means is able to vary a pause period of said stimulation signals at random.

10 9. A living body stimulating apparatus according to claim 7, wherein said stimulation pause command means comprises a control sequence installed inside a CPU.

10. A living body stimulating apparatus according to claim 1, wherein said rectangular wave pulse can vary in amplitude at random.

15 11. A living body stimulating apparatus for applying an electric stimulus to a living body, said apparatus comprising conductor elements to apply a stimulation signal to said living body by allowing an electric current to flow from the conductor elements to said living body, which comprises:

20 a stimulus generator means for outputting rectangular wave pulse groups repeatedly to said conductive elements as stimulation signals, said stimulus generator means outputting stimulation signals formed by varying the density of a plurality of on-pulses constituting the rectangular wave pulse groups during an output period of said rectangular wave pulse groups, so that said rectangular wave pulse groups defining pulse groups are alternately positive and negative, while the density of said on-pulses
25 gradually increases from a rising edge of the rectangular wave pulse group until about the middle of a predetermined time width thereof and then gradually decreases until a falling edge of the rectangular pulse group.

30 12. A living body stimulating apparatus according to claim 11, wherein said stimulus generator means outputs said stimulation signals so that a time width of said rectangular wave pulse group may be at least 100 times wider than that of said on-pulse.

35 13. A living body stimulating apparatus according to claim 11, wherein said stimulus generator means is provided with a switching means for generating a rectangular pulse group containing a plurality of higher frequency signal components than the rectangular wave pulse by on-off switching of the rectangular pulse and a pulse

density controlling means for supplying PDM digital signals for switching the switching means to the switching means.

14. A living body stimulating apparatus according to claim 13, wherein said
5 pulse density controlling means comprises a control sequence installed inside a CPU.

15. A living body stimulating apparatus according to claim 13, further
comprising a strong stimulation command means for temporarily outputting said
rectangular wave pulse of a larger amplitude than a predetermined one.
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16. A living body stimulating apparatus according to claim 15, wherein said
strong stimulation command means comprises a control sequence installed inside a
CPU.

17. A living body stimulating apparatus according to claim 11, further
comprising a stimulation pause command means for temporarily stopping the output of
said stimulation signals.
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18. A living body stimulating apparatus according to claim 17, wherein said
20 stimulation pause command means can vary a stimulation pause period at random.

19. A living body stimulating apparatus according to claim 17, wherein said
stimulation pause command means comprises a control sequence installed inside a
CPU.
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20. A living body stimulating apparatus according to claim 11, wherein an
amplitude of said rectangular wave pulse can be varied at random.
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